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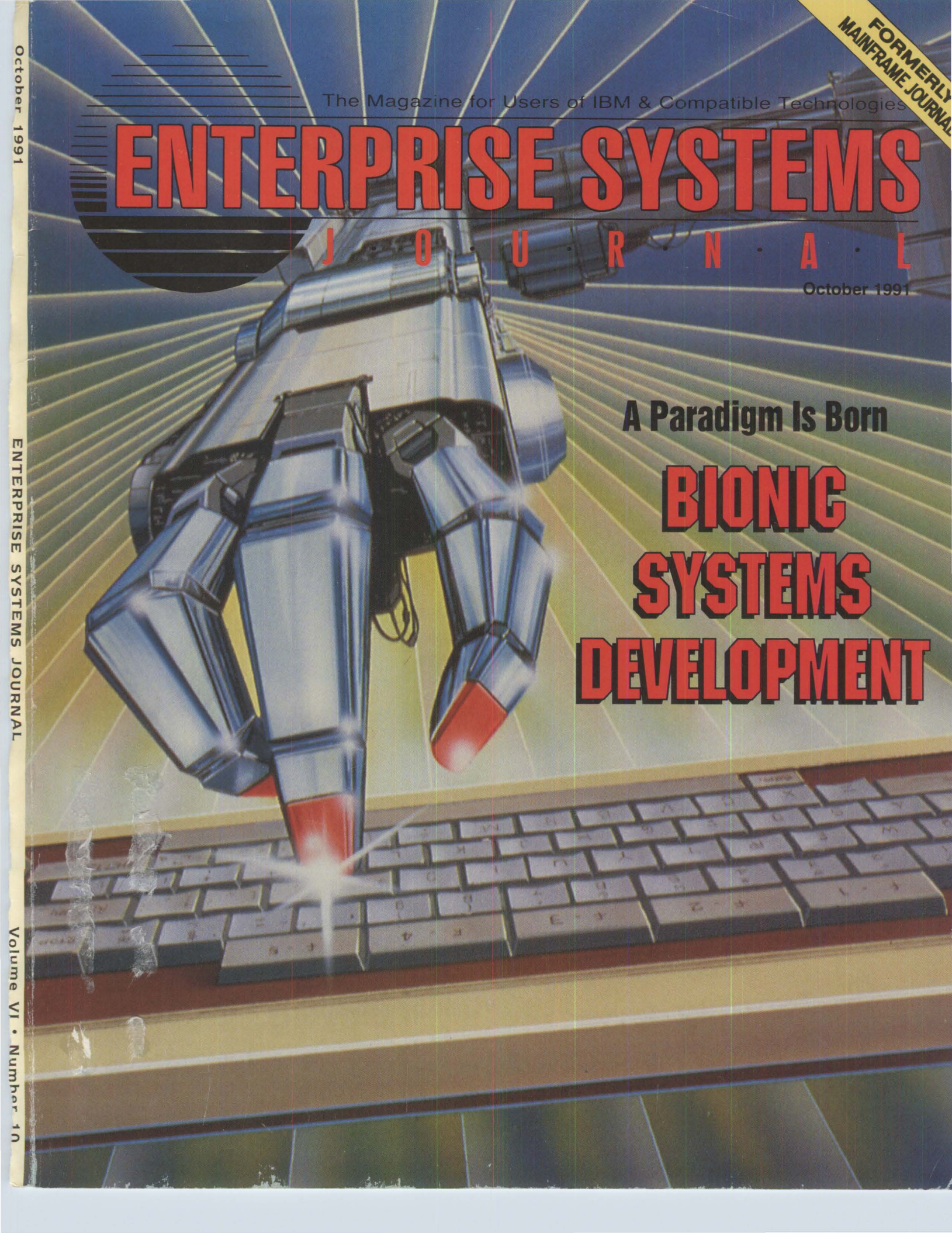
The Magazine for Users of IBM & Compatible Technologies

ENTERPRISE SYSTEMS JOURNAL

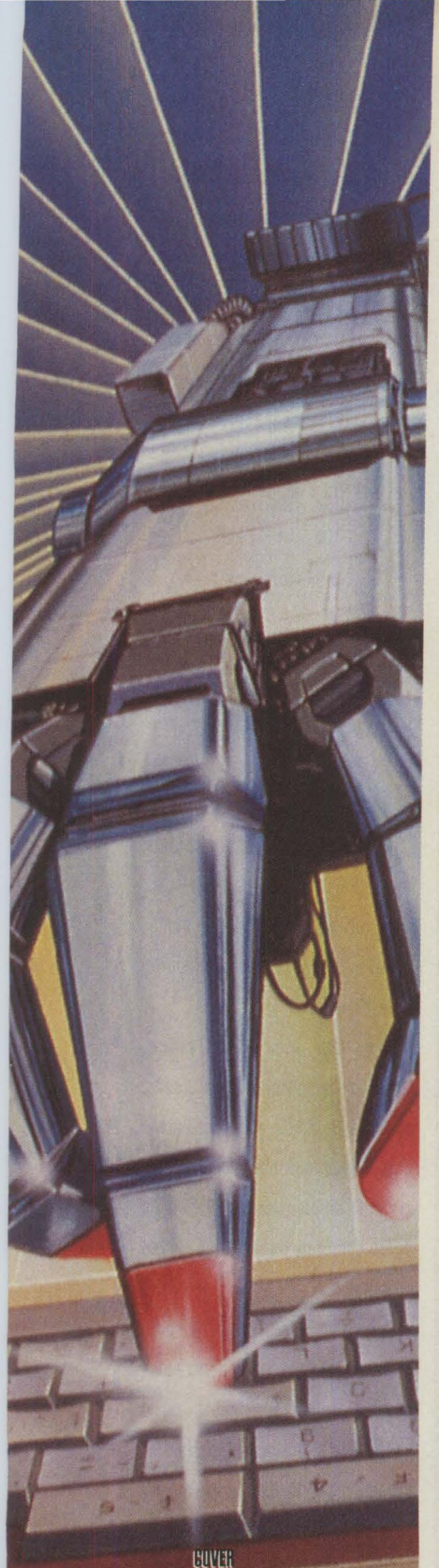
October 1991



A Paradigm Is Born

BIONIC SYSTEMS DEVELOPMENT

October 1991 ENTERPRISE SYSTEMS JOURNAL Volume VI • Number 10



COVER

Bionic Systems Development Environment (BSDE) is a new program paradigm which takes only one-third of the effort of previous approaches to build applications, according to Howard Fosdick in his article on page 80. Cover illustration by Hitoshi Ikemasu.

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Bob Thomas

Just Another Revolution

About the time it seemed nothing could possibly top the earth-shattering impact of the disintegration of the Berlin Wall, along came the democratization of the Soviet Union. These have been truly extraordinary days in the evolving history of the world.

But alas, another phenomenon threatens to eclipse even those awesome events. IBM has now acknowledged that it does not believe it can impose its standards on the rest of the world. Although somewhat less momentous, IBM's open-systems plan was also provoked by the demands of its "citizenry."

Populace Demands

To IBM's credit, it is listening to customers and reacting accordingly — and not one nanosecond too soon. On September 11, IBM made another blockbuster announcement involving more than 100 product offerings. Most dramatic, however, were the products directly targeted to help customers connect and manage many diverse computer systems and technologies (see Inside IBM on page 8 and "Client/Server And The Enterprise: IBM's Next Step" on page 48).

Extensive input from members of the GUIDE and SHARE user groups guided IBM in identifying eight key areas critical to implementing enterprise-wide systems. In addition to client/server and networking, other important areas include application development, enterprise data, technical computing, transaction processing and continuous availability, systems management and security.

Open-Systems Leadership

Will IBM follow through with its stated commitment to openness? At this pivotal time in its history, it is not a matter of *will*, it is more a matter of *must*. "The open enterprise is a top priority of IBM," according to William O. Grabe, IBM vice president and general manager, Marketing and Services, IBM United States. "Customers need and deserve access to data and applications no matter where they reside. IBM intends to provide the products, frameworks and services that will give our customers a competitive edge in the global market. We intend to become the open-systems leader."

By embracing industry standards and at the same time providing its own proprietary standards to the industry, IBM is acknowledging that IS has shifted away from the Pied Piper-approach of selecting products with unyielding allegiance to any one particular vendor. In the '90s companies will be selecting only the necessary hardware, software and services required to provide solutions to business problems. Wow, what a novel approach!

Bob Thomas

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Do Not Count OS/2 Out Until All The Votes Are In

By Richard L. Heuser

Much to the confusion of software vendors, Information Systems (IS) professionals and end users, industry experts have been debating the future of IBM's OS/2 for some time.

Although there has been a considerable amount of "OS/2 bashing" in the past year, some analysts have claimed that OS/2 will simply fade away. With the rapid expansion of distributed systems — and the growing requirement to integrate PCs and workstations into an enterprise-wide computing system — today's IS professionals are faced with the task of choosing a platform for their distributed applications.

The confusion regarding OS/2 has made this choice a difficult one, but trends in the industry indicate that, in the near future, OS/2 will become a strong player in distributed systems. A number of software vendors are developing OS/2 software tools and applications in anticipation of the boom in the OS/2 market.

IBM's April 15 announcement of OS/2 Version 2.0 (scheduled to ship this fall), has convinced software vendors that they made the right decision. IBM has made its position clear: the company is promoting OS/2 with renewed zeal, calling it the "integrating platform for the enterprise."

Most industry experts agree that when IBM puts a marketing push on a product, that product has a good chance of succeeding. There is a lot more than marketing hype behind OS/2 Version 2.0, however, IBM has given some convincing presentations and demonstrations of the product in recent months.

Experiences with beta test releases of Version 2.0 are bearing out IBM's claims. OS/2 is proving to be a technically superior product in several important areas: performance, ease of use and development productivity. Version 2.0 also enables users to integrate DOS, Windows and OS/2 applications on a single platform. Add to that IBM's strong presence in the IS community and the future looks bright for OS/2.

OS/2 is proving to be a technically superior product in areas such as performance, ease of use and development productivity.

This article examines some of the factors that influenced one software vendor's decision to develop and market its workstation-based data center management software on the OS/2 platform and why management is convinced it made the right decision.

IS professionals in major corporations around the world are also making this same decision. As a result, OS/2 is rapidly gaining ground — especially in larger organizations.

Early OS/2 Versions Encounter Limited Market Acceptance

While OS/2 has been on the market since early 1988, relatively few users have made the move to IBM's microcomputer "operating system of the future."

Three major factors hampered the acceptance of OS/2 in the market. First, large memory requirements made the hardware required to run OS/2 rather expensive. Early OS/2 products simply did not offer enough additional functionality to tempt users into investing in additional hardware.

Second, OS/2 acceptance was impeded by a lack of applications. Most of the early OS/2 applications did not use Presentation Manager (PM). As a result, those applications did not meet user demands for the ease of use associated with Graphical Users Interfaces (GUIs).

Finally, when OS/2 was introduced, users were, for the most part, content with DOS. They were not fully aware of the advantages of GUIs, and they did not see a need to upgrade to more expensive hardware. Simple inertia kept them from investing in new hardware and applications. They were hesitant to experience the disruption caused by switching operating systems and the learning curve associated with a new user interface.

Today's Microcomputer Environment

The majority of microcomputer users run DOS applications. Because DOS does not always provide the power they need, many users take advantage of DOS "ex-

tender products" to get more out of their microcomputer systems.

Extenders include products that provide additional memory to accommodate larger applications. They also include products such as Microsoft (Redmond, WA) Windows 3.0 that delivers limited multitasking and GUI capabilities to DOS users.

When DOS was introduced in the early 1980s, it was a powerful solution for the PC user. DOS was designed to accommodate 640K of RAM — 10 times the available memory of those first 64K PCs. This capacity seemed to be more than adequate to allow future growth. After all, *how much power and memory could one person use*?

In the past decade, however, the processing power on the desktop has increased dramatically. Applications have become more complex — and much larger. Users have grown in their level of sophistication. The concept of connecting individual desktop workstations into a network that spans the enterprise has evolved from a wish to an absolute requirement.

UNIX

The inadequacies of DOS became apparent in the mid-1980s. Yet none of the alternatives has proven to be 100 percent satisfactory. The UNIX operating system offers multiuser, multitasking and other capabilities that DOS users need. But hardware required to run the UNIX operating system has tended to be expensive. Cryptic commands and a limited number of available applications have hampered acceptance of UNIX systems in the business environment. Users are also confused by the numerous, incompatible versions of the UNIX operating system.

Microsoft Windows 3.0

Introduced in 1990, Windows 3.0 has met with immense popularity because it overcomes several major DOS inadequacies. It enables users to run multiple applications simultaneously. In addition, Windows applications employ GUIs that deliver greater ease of use than the traditional DOS character-based applications.

But the weaknesses of Windows have become apparent. Users complain of hefty memory requirements and sluggish performance. Only one copy of each application can run at a time, and Windows does not employ preemptive time slicing.

While Windows *does* overcome some major DOS shortcomings, it is still based on DOS. Because DOS is a single-user operating system it does not provide adequate protection for applications that are running simultaneously. If one application compromises the system, the user must shut down *all* applications. This can have serious consequences if the user is in the middle of a task from which recovery is not possible.

OS/2, on the other hand, was built with a basic design philosophy that differs dramatically from that of DOS. Multiuser and multitasking capabilities were built into OS/2 from the start.

Ease of use was another key consideration. These two factors, combined with the fact that OS/2 plays an important role in IBM's System Application Architecture (SAA), convinced this company that OS/2 was the platform that most closely matched the future requirements of its customer base. OS/2 Version 2.0, with its ability for full 32-bit addressing and its extensive memory capacity, is bearing this out.

IBM Pitches Technical Superiority

IBM's OS/2 demonstrations are geared toward illustrating technical superiority over DOS, Windows 3.0 and previous versions of OS/2. Their presentations and literature revolve around the proposition that OS/2 is *a better DOS than DOS, a better Windows than Windows and a better OS/2 than OS/2*. As a 32-bit operating system, Version 2.0 is better positioned (than DOS,

Windows or previous 16-bit versions of OS/2) to exploit the Intel i386 and i486 hardware architecture — thus allowing it to support more powerful applications.

OS/2 Version 2.0 will enable users to run their existing DOS applications concurrently — in either foreground or background. At the same time, these applications run faster than under native DOS or Windows because OS/2 provides more usable memory to the applications.

Under native DOS, applications on a 640K machine have approximately 512K of memory available (depending on the version installed). Under Windows, this number can drop to 378K (configuration dependent). These same applications under OS/2 can access 610K each — resulting in better performance. In emulation mode, these applications also take advantage of OS/2's multitasking capabilities, high-performance file system and preemptive scheduling to ensure better performance.

Version 2.0 also makes provision for a class of applications that will not run in DOS emulation mode because they take advantage of features specific to a particular version of DOS. As a result, they require that specific version of DOS be booted.

OS/2 allows the user to run virtual DOS machines under OS/2 — and actually boot the required version (or versions) of DOS. OS/2 performs equally well against Windows 3.0. Memory requirements are almost identical. Side-by-side comparisons of the same application running under Windows 3.0 and under OS/2 show little or no difference in performance under OS/2.

In multitasking situations, however, OS/2 actually delivers better performance for Windows applications from the user perspective. Through preemptive multitasking, OS/2 gives priority to the foreground task — making the response on that foreground task faster.

One of the major advantages of OS/2 over Windows is that OS/2 is designed for multitasking. As a result, it provides the system integrity users need. As applications are protected from each other, a *misbehaving* application cannot take the whole system down (as can occur under Windows). In the worst case, the misbehaving application is terminated.

An additional OS/2 advantage is the provision for more program-addressable memory for each application. With DOS and Windows 3.0, the maximum addressable memory is 16MB. OS/2, on the other hand, is a virtual memory system with paging. Under OS/2, each application can currently take advantage of up to 512MB of addressable memory — and IBM plans to raise that limit to 4GB in the future. This significantly larger addressable memory enables users to run larger and more sophisticated applications.

Finally, OS/2 will run existing DOS, Windows 2.0 and 3.0, and OS/2 applications simultaneously — without modification and with better performance. As a result, organizations that are currently using DOS and Windows can take advantage of new and future technologies while protecting their investment in existing applications, data and training.

What do these capabilities mean? IS professionals can now support a number of PC users with diverse operating platforms (DOS, Windows and OS/2) all from the same OS/2 platform. In other words, OS/2 accommodates their existing environments. The higher performance and ease of use translates into greater productivity for end users and minimizes support requirements for the IS staff.

Finally, OS/2's extended memory support is geared to sustain the next generation of applications software that will incorporate GUIs and imaging.

Ease Of Use

IBM has paid particular attention to user demands for ease of use. OS/2 simplifies the installation process by making it graphical. The user can point and click through menus and tailor the system for specific environments. Parameters that previously had to be specified in the cumbersome CONFIG.SYS file of earlier OS/2 versions are now menu-selectable. For existing OS/2 users who have already created a CONFIG.SYS file, Version 2 will bring forward all the user settings so that reconfiguration is not required after installation.

To ensure an easy migration to Version 2.0, OS/2 can "look like" DOS 4.0, Windows 3.0 and OS/2 Version 1.3 — working in precisely the same way. Users do not have to learn a new interface unless they want to take advantage of the graphical features of PM.

The PM interface for OS/2 applications makes tremendous strides in ease of use. It complies with SAA specifications for Common User Access (CUA). It supports graphical interaction so that users perform tasks with pull-down menus and icons as well as point-and-click and drag-and-drop operations.

IBM is also working to provide workbenches, compilers, debuggers, editors and object-oriented environments and other development tools to simplify the development process. There are already more than 100 development tools available from third-party vendors: application generators, CASE tools, image support tools, source code generators and version control systems.

As part of its OS/2 announcement, for example, IBM disclosed details of an agreement with Micrografx (Dallas, TX) for the development of migration tools and performance enhancements for OS/2.

Component Of SAA

SAA is IBM's foundation for enterprise-wide computing. It encompasses a full range of computing environments including the PS/2 and RISC System/6000 for the desktop, AS/400 for midrange computing requirements and ES/9000 for mainframe environments. The possibility of consistent and portable applications across all these platforms, as well as across non-IBM platforms, is compelling.

For the most part, IS professionals (and, as a result, many major corporations around the world) have made a strong commitment to SAA. As a key component of SAA, OS/2 has already met with acceptance in the IS community. Many IS professionals have already adopted OS/2 for their own use. Because they have been working with OS/2 applications and software tools, they already have a working knowledge and comfort level with OS/2. Most are convinced that OS/2 is a powerful development and end-user environment.

The Votes Are In?

Until April 15, a number of industry experts were convinced that the votes were in and counted, and that Windows 3.0 and other solutions would win out over OS/2. However, IBM's renewed OS/2 marketing effort — combined with technical superiority of the product and IBM's favored position by the people who influence computing decisions in the corporate environment — has dramatically changed the picture.

As organizations rely more and more on IS to help them leverage their investment in desktop and LAN computing resources, the influence of IS professionals is being felt. These individuals are promoting OS/2 among the users they support.

Because of these factors — and because of its role in SAA — OS/2 will become the operating system of choice for the desktop in the corporate environment. DOS and Windows will continue to play a role on the desktop for some time. IBM has made it as easy as possible for IS professionals who

SQL/DS Tables *from page 67*

want to use OS/2 to support DOS, Windows *and* OS/2 users all from the OS/2 environment. By providing support for DOS and Windows applications, IBM has made the move painless in terms of protecting the user's existing investment.

When OS/2 Version 2.0 is released in the next few months, it will be met with widespread acclaim for its technical superiority. And, IBM will clear up any doubt as to its ability to maintain a leadership role in the desktop operating system market.

ABOUT THE AUTHOR

Richard L. Heuser, vice president of research and development at Sterling Software's Software Laboratories Division, has more than 20 years experience in the computer industry including 10 years at IBM in operating system development, marketing and sales. Sterling Software, 1121 San Antonio Road, Palo Alto, CA 94303, (415) 964-9900.

With this method, a DVERIFY can be performed against a RESTORE database after restoring the directory and system catalog minidisks, using only dummy minidisks for all other dbextents.

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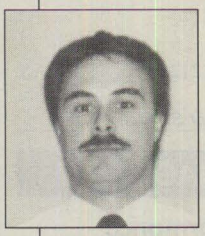

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MARKETPLACE

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